

WHAT IS CLAIMED IS:

1. A method to produce one or more cDNA molecules comprising:
  - (a) contacting a sample comprising an mRNA template with a solid medium, wherein the solid medium comprises a matrix;
  - (b) sorbing at least a portion of the mRNA template to the solid medium; and
  - (c) contacting the template with one or more reverse transcriptases under conditions sufficient to synthesize one or more cDNA molecules complementary to all or a portion of the templates.
2. The method of claim 1, wherein the cDNA is a cDNA library.
- 15 3. The method of claim 1, wherein the mRNA is removed from the solid medium prior to the cDNA synthesis.
4. The method of claim 1, wherein the cDNA is double-stranded.
- 20 5. The method of claim 1, further comprising:
  - (d) amplifying the cDNA.
6. A method for storing an mRNA molecule, comprising:
  - (a) contacting a cell comprising an mRNA molecule to be stored with a solid medium, wherein the solid medium comprises a matrix containing a composition for substantially inhibiting degradation of the mRNA molecule; and
  - (b) drying the cell and the solid medium.
- 30 7. The method of claim 6, wherein the composition comprises:
  - (a) a weak base;
  - (b) a chelating agent; and
  - (c) an anionic detergent or surfactant.

8. The method of claim 1, wherein the matrix contains a composition for substantially inhibiting degradation of the mRNA template, the composition comprising:

- 5           (a) a weak base;  
             (b) a chelating agent; and  
             (c) an anionic detergent or surfactant.

9. The method of claim 8, wherein the composition further comprises uric acid or a urate salt.

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10. The method of claim 1, wherein the matrix comprises a cellulose-based matrix or paper, or a micromesh of synthetic plastic material.

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11. The method of claim 1, wherein the solid medium is selected from the group consisting of nitrocellulose, cellulose, diazocellulose, carboxymethylcellulose, hydrophilic polymers, polytetra-fluoro-ethylene, fiberglass, porous ceramics, polystyrene, polyvinylchloride, polypropylene, polyethylene, dextran, agarose, agar, starch, and nylon.

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12. The method of claim 1, wherein the sample comprising the mRNA template is selected from the group consisting of cells, viruses, viral plaques, and preparations from biological materials.

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13. The method of claim 7, wherein the composition further comprises uric acid or a urate salt.

14. The method of claim 6, wherein the matrix comprises a cellulose-based matrix or paper, or a micromesh of synthetic plastic material.

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15. The method of claim 6, wherein the solid medium is selected from the group consisting of nitrocellulose, cellulose, diazocellulose, carboxymethylcellulose, hydrophilic polymers, polytetra-fluoro-ethylene, fiberglass, porous ceramics, polystyrene, polyvinylchloride, polypropylene, polyethylene, dextran, agarose, agar, starch, and nylon.

16. The method of claim 1, wherein the sample comprising the mRNA template is selected from the group consisting of cells, viruses, viral plaques, and preparations from biological materials.